REMARKS

Re-examination and reconsideration of the subject matter identified in caption, pursuant to and consistent with 37 C.F.R. §1.116, and consistent with the remarks which follow, are respectfully requested.

Claims 8 and 11-15 remain pending in this application. Claims 11-15 stand withdrawn from consideration on the merits as not readable on the elected invention.

Claim 8 has been finally rejected under 35 U.S.C. §102(b) as anticipated by U.S.. Patent No. 5,475,075 to Brant et al. The Examiner's reply to the arguments raised in the Amendment filed March 22, 2004, concerning this rejection is set forth in paragraph (4) of the last Office Action. Reconsideration and withdrawal of this rejection are respectfully requested for at least the following reasons.

The broad disclosure of Brant et al. '075 suggests that "longer α-olefins (e.g. C_{10}-C_{100})" can be polymerized with ethylene (column 3, lines 48-49). The reference further states that:

> *Theoretically, any α-olefin up to 100 carbon atoms or more is used to impart side chain crystallizability, but as a practical matter, α-olefins of up to C_{30} of the desired purity are available commercially. Alpha-olefin monomers having more than about 30 carbon atoms generally have a broader distribution of molecular weights, and can also have some branching which influences crystallizability.*
> (underlining added)

In the actual working examples, only α-olefins up to C_{18} (octadecene) are exemplified. Even the claims of the Brant et al. '075 Patent are restricted to α-olefins of C_{10}-C_{30} carbon atoms.

M.P.E.P. §2131.03, Section II states:

> *When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case*

determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious.

Applicants respectfully submit that Brant et al. '075 does not disclose the invention of claim 8 with "sufficient specificity to constitute an anticipation under the statute." The reference merely speculates that "theoretically," α-olefins up to 100 may be copolymerized with ethylene. The working examples only enable α-olefins of 18 carbon atoms. Also, α-olefins above 30 carbon atoms are expressly excluded by the language of the claims. Further, a Declaration submitted pursuant to 37 C.F.R. §1.132 attached to the present Response shows that the invention defined by claim 8 provides unexpected results as discussed more fully below.

For at least the above reasons, the §102(b) rejection over Brant et al. '075 should be withdrawn. Such action is earnestly requested.

Claim 8 was finally rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,444,773 to Markel for the reasons given in paragraph (2) of the Office Action. Reconsideration and withdrawal of this rejection are respectfully requested in view of the following reasons and the attached Declaration.

The α-olefin macromers disclosed in Examples I and III of Markel '773 have weight-average molecular weights of 23,587 and 58,119, respectively. This is significantly above the 3500 value in claim 8. The molecular weight value of 1500 in claim 1 of the reference is a number-average molecular weight. There is no

motivation in Markel '773 to produce α-olefin macromonomers having a weight-average molecular weight as low as 600-3500 as in claim 8. However, the Examiner contends that it would have been obvious from the disclosure in the reference to prepare α-olefin macromonomers having a weight-average molecular weight within the range of 600-3500, absent a showing of unexpected results.

In response thereto, Applicants are submitting a Declaration by one of the inventors pursuant to 37 C.F.R. §1.132. The data in the table on page 2 of the Declaration shows that when one maintains the weight-average molecular weight of the α-olefin macromonomer to a value within the claimed range of 600-3500, the amount of unreacted macromonomer is substantially less than when one uses a macromonomer having a weight-average molecular weight of 4500 or 9000. The difference between a molecular weight of 3500 and one of 4500 is quite significant. These results are quite unexpected and could not have been predicted from the disclosure of Markel '773.

For at least the above reasons, the §103(a) rejection of claim 8 over Markel '773 should be reconsidered and withdrawn. Such action is respectfully requested.

Entry of the attached Declaration is requested since it is believed that consideration thereof will place this application in allowable condition or in better condition for appeal. This is the first opportunity Applicants have had to respond to the new ground of rejection over Markel '773 and the Examiner's suggestion to overcome the obvious rejection by showing unexpected results.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at (703) 838-6683 at her earliest convenience.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: September 28, 2004

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of

Norio Kashiwa, et al.

Serial No. 10/088,995

Filed: 03/26/2002

For: POLYMER AND PROCESS FOR PREPARING THE SAME

Group Art Unit: 1713

Examiner: Lu, C Caixia

The Honorable Commissioner of Patents and Trademarks
United States Patent and Trademark Office
Washington, D. C. 20231

DECLARATION UNDER 37 CFR 1.132

Sir:

I, Shingo MATSUO, declare and state that:

In March, 1991, I was graduated from Kyushu Institute of Technology (KIT), department of engineering, and received a degree of Bachelor of Engineering from KIT. In March, 1993, I was graduated from the graduate course of KIT, majoring material engineering, and received a degree of Master of Engineering from KIT.

Since April, 1993, I have been an employee of MITSUI Petrochemical Industries Ltd. (now Mitsui Chemicals, Inc.) and, till the present time, I have been engaged in research and development work concerning polymerization catalyst of olefins in Polymer Research Laboratory of the same company.

I am a co-inventor of the above identified application.

I carried out the following experiments.

[Inventive Experiment 1]

Example 1 of the present specification was repeated. The resultant was mixture of unreacted macromonomer and branched polyolefin which is a copolymer of ethylene and macromonomer. Weight ratio of the unreacted macromonomer and branched polyolefin was measured. In the resultant, unreacted macromonomer content was only one third. Results are shown in below together with the results of following Additional Experiments.

[Additional Experiments]

Example 1 of the present specification was repeated except that MAO-2 used in Example 2 was used and transition metal compound (A-1) and transition metal compound (B-1) were added separately. The transition metal compounds (A-1) and (B-1) are those defined in page 96 of the specification. In Additional Examples 1 to 4, time difference between first addition of compound (B-1) and second addition of compound (A-1) was varied to prepare macromonomers having different molecular weights.

Results are shown in below.

	Polymerization condition			Weight average molecular weight of macromonomer	Weight ratio
	aluminoxane	Time difference*3 (minutes)	Polymerization time (minutes)		Macromonomer / branched polyolefin
Inv. Exp. 1	MAO-1*1	0	10	2000	1/2
Add. Exp. 1	MAO-2*2	1.5	10	3500	1/1
Add. Exp. 2	MAO-2	3.0	10	4500	10/1
Add. Exp. 3	MAO-2	3.0	30	4500	8/1
Add. Exp. 4	MAO-2	6.0	10	9000	50/1

*1: aluminoxane used in Example 1 of the specification

*2: aluminoxane used in Example 2 of the specification

*3: time difference between first addition of compound (B-1) and second addition of compound (A-1)

The undersigned declares further that all statements made herein of my own knowledge are true and that all statements made

on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

respectfully submitted,

September 17, 2004

Shingo Matsuo

Shingo MATSUO